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Some hitherto undescribed plants from New Mexico

ELMER OTTIS WOOTON AND PAUL CARPENTER STANDLEY

During the summer of 1904 and the spring of 1905, Mr. O. B. Metcalfe made a botanical collection of some six or seven hundred numbers about the south end of the Black Range in Grant and Sierra counties of New Mexico. The region is one that was almost unknown botanically before that time.

Most of the numbers were determined by Dr. E. L. Greene and distributed soon after their collection. They included a number of new species in various genera, most of which have been described by Dr. Greene in volume one of *Leaflets*. There remained, however, about two hundred numbers which have been recently determined by the writers. Among them a number of apparently undescribed plants were found, descriptions of which are here published.

The determination of a single species of *Sphaeralcea* led us to examine critically all the material of this genus found in the herbarium of the Agricultural College. A number of species were found which seemed to us worthy of description, and diagnoses of them are included in this paper.

***Acacia constricta paucispina* var. nov.**

Plant almost twice the size of the typical form of the species; spines much less numerous, usually shorter, sometimes none on herbarium specimens; leaves larger with more numerous pinnae and leaflets; young parts much more pubescent and less glandular and resinous.

In the field this plant seems distinct enough from the typical *A. constricta* Benth., which is a shrub about 1 to 1.5 m. high, growing upon high gravelly mesas associated with *Condalia* and *Covillea*, at an altitude of about 1200 m. The proposed variety grows at considerably higher levels up to about 1700 m., in the foothills of the mountains and in the mouths of cañons. It usually occurs as separate shrubs, widely scattered and never forming thickets as the typical form does. It is not infrequently 4 m. high.

The difference may be due simply to environmental conditions, chief of which is a better water supply. Type: collected on Animas Creek, in the Black Range, Sierra Co., New Mexico, July 13, 1904, *Metcalf* 1123, altitude about 1500 m.

Other specimens seen: Organ Mts., 1897, *Wooton* 120; Doña Ana Mts., Aug. 14, 1892, *Wooton*; Carlisle, Grant Co., Aug. 14, 1902, *Wooton*; Burro Mts., 1903, *Metcalf* 734.

***Ditaxis cyanophylla* sp. nov.**

Stems numerous, erect, herbaceous, from a perennial root, 30 to 40 cm. high, glabrous and shining, grooved; leaves alternate, sessile, 20 to 50 mm. long, 5 to 30 mm. wide, the lowermost broadly elliptic to ovate, gradually narrowing towards the upper part of the stem, where they are narrowly lanceolate, glabrous and smooth, or with a few scattering hairs along the margins, entire, obtuse or acute, prominently veined, drying bluish in some specimens, staining water red when allowed to soak; flowers in axillary 3- to 6-flowered racemes, slightly exceeding the leaves; bracts small, tipped with a small bunch of hairs; the two kinds of flowers very similar, the sepals in both kinds lanceolate, acuminate, 6 to 7 mm. long, persistent and somewhat enlarged in fruit, appressed-villous within; petals of the staminate flowers spatulate, light-yellow with reddish veins, about as long as the sepals; petals of the pistillate flowers oblanceolate, acute, about two thirds the length of the sepals, persistent in fruit; glands very small, depressed-globose, glabrous; stamens 8 to 10, monadelphous; style 3-parted, with expanded crispate stigmas; ovary appressed-villous; fruit generally 3-lobed, sometimes 2-seeded by abortion of one or more ovules; seeds spheroidal, smooth, blotched with blue and red.

This species is related to *D. mercurialana* (Nutt.) Coult., from which it may be separated by the absence of pubescence on nearly all parts of the plants, the shorter inflorescence, the larger petals, the generally broader leaves, and the slightly smaller size of the plant. Type, *Metcalf*'s 929 from Kingston, Sierra Co., New Mexico, May 25, 1904, growing in dry gravel; altitude about 2100 m.

Other specimens seen:

NEW MEXICO: Western Socorro Co., south of Rito Quemado, 1904, *Wooton* 2890, growing at the lower edge of the piñon zone on sandhills.

ARIZONA: Near Coyote Springs, southeast of Springerville, in the piñon zone, June 23, 1892, *Wooton*.

***Sphaeralcea glabrescens* sp. nov.**

Plant 20–35 cm. high, forming a dense cluster of stems from a perennial ligneous root, densely covered with stellate pubescence, giving the whole plant an ashy gray color; leaves small for the genus, crowded on the upper parts of the stems; the blades 1–2 cm. long, less than one half as wide, narrowly triangular in outline with 2 salient teeth or small lobes at the obtuse base, the apex obtuse, margins sinuate and crispate, veins prominent below; young leaves densely covered on both sides with white stellate hairs, the branches of which are long for the genus and slender; the mature leaves glabrate and light green on the upper surface; petioles 1 cm. or less in length; flowers small, reddish, borne in short terminal clusters; calyculate bracts linear, about 1 mm. long; calyx 5–7 mm. long, the broadly lanceolate acute segments being slightly longer than the tube, persistent in fruit and partly enclosing the capsule; capsule almost spherical with 10 carpels, each of which contains 2 or 3 ovules and 1 or 2 seeds and is tipped with a very short mucro.

Type collected at Providencia Lake about 30 miles west of Las Cruces, New Mexico, July 3, 1900, by E. O. Wooton. The "lake" is merely a place where flood waters collect and is an alkaline flat most of the time, with a finely powdered soil. This is one of the few plants which grow near its edges. It is probably most nearly related to *S. hastulata* A. Gray but the connection is not very close.

***Sphaeralcea leiocarpa* sp. nov.**

An erect perennial; stems branched, slender, minutely and sparingly stellate-pubescent throughout, the pubescence denser above; leaf-blades large, thin, 55 mm. long and 40 mm. wide or less, bright green on both sides, with fine, minute, scattered, white, stellate pubescence on both surfaces, truncate at the base, 3-lobed, the sinuses rather shallow; the terminal lobe oblong, and broadest near the obtuse or retuse apex, coarsely crenate near the apex but entire below; the lateral lobes smaller and coarsely crenate; petioles slender, finely stellate-pubescent, 3 cm. long or less; inflorescence narrowly subpaniculate, rather dense, the flowers on slender pedicels 10 mm. or less in length, each flower subtended by 2 or 3 filiform bracts which are about one third as long as the calyx; lobes of the calyx triangular-ovate, acute, the free portion longer than the tube, finely stellate-pubescent, about one third as long as the corolla and a little shorter than the carpels; petals about 8 mm. long; fruit about 5 mm. high and 5 mm. broad; carpels 10, densely and finely stellate-pubescent on the outer surface, 1- or 2-seeded, the inner faces smooth near the base and not

pitted or only inconspicuously veined, carpels ending above in prominent divaricate cusps, which are about 2 mm. long; seeds brown, densely and finely stellate-pubescent.

Type collected at Mangas Springs, Grant Co., New Mexico, Sept. 24, 1903, at an altitude of about 1465 m., *Metcalf* 791 (in part at least), growing on a western hillside. This plant is easily distinguished from *S. Fendleri*, which it most resembles, by its broader, obtuse, less incised leaves, more prominent cuspidate carpels, and the smooth, not pitted, inner surfaces of the carpels.

***Sphaeralcea tripartita* sp. nov.**

Stems finely stellate-pubescent throughout, densely so above; leaf-blades 3-parted, the lower ones almost to the base, the upper ones not quite so deeply, the lobes of the blade entire or the middle one again 3-lobed and the lateral ones 2- or 3-lobed, not crenate, the lobes when entire oblong, the lateral ones smaller than the terminal; blades 55 mm. long and 70 mm. wide or less, thin, bright green on both surfaces, finely stellate-pubescent above and more densely so below, the pubescence white; the uppermost leaves almost or quite entire and oblong-lanceolate, petioles rather stout, almost one third as long as the blades; inflorescence narrowly subpaniculate, rather loose; flowers on short, stout, densely stellate-pubescent pedicels, each subtended by 2 or 3 thick, filiform bracts, which are about one half as long as the calyx; calyx-lobes triangular-lanceolate, thick, acute, densely stellate-pubescent; corolla about 9 mm. long, 2 or 3 times as long as the calyx, the petals pink, obovate, rounded above; fruit 5 mm. broad and 4 mm. high, with 5 to 10 carpels, which are densely pubescent on their outer surfaces and more or less prominently pitted near the base of their inner surfaces, 1- or 2-seeded, pointed but not cuspidate, equaled or exceeded in length by the sepals; seeds dark brown, finely and very sparingly stellate-pubescent.

Type collected at Kingston, Sierra Co., New Mexico, growing in dry gravel, July 10, 1904, *Metcalf* 1103; altitude about 2030 m. Nearest *S. Fendleri* and *S. leiocarpa* perhaps, but differing from both in the peculiar form of the leaves, whose lobes are mostly entire. There is no complete plant in the collection but only some of the upper branches. The plant is, no doubt, a perennial several feet high.

***Sphaeralcea laxa* sp. nov.**

Stems erect, slender, much branched, about 5 dm. high, with rather dense and fine white stellate pubescence throughout, the

stems appearing rather hoary; leaf-blades 27 mm. long and 25 mm. wide or less, 3-lobed, the sinuses deep, the lobes obtuse and coarsely crenate all along the margins, dull yellowish-green on both surfaces, with abundant, rather coarse, spreading, conspicuous, stellate pubescence on both sides; petioles slender, 20 mm. long or less; inflorescence axillary below and forming a very loose open panicle above; flowers on very slender pedicels, which are 55 mm. long or less, subtended by 2 or 3 short, filiform bracts; lobes of the calyx lanceolate or linear-lanceolate, attenuate, about 3 times as long as the tube, very densely stellate-pubescent, the entire calyx about 10 mm. long; corolla 14 mm. long or less, salmon-pink, the petals rounded or retuse; fruit about 6 mm. high and as wide, about one half as long as the calyx, composed of 10 or rarely more carpels, which are 2- or mostly 3-ovuled, and end above in a very short mucro; carpels densely pubescent on their outer faces.

Nearest *S. tripartita* and *S. Fendleri*, perhaps, but differing from both in its lax inflorescence, long-pedicelled flowers, and long and attenuate sepals. Type collected at Frisco, Socorro Co., New Mexico, July 25, 1900, *Wooton*; the plant was collected also at Graham, July 21, 1900, *Wooton*.

***Sphaeralcea simulans* sp. nov.**

Plant low, diffuse, green, 1–2 dm. high, with numerous slender stems from a perennial root, densely scurfy throughout with yellow stellate scales; leaves 2–4 cm. long, triangular in outline, conspicuously 3-lobed, cuneate at base, obtuse, veins prominent, margins coarsely few-toothed; flowers axillary on short (2–5 mm. long) pedicels, becoming almost racemose at the ends of the stems, bright orange-scarlet, 1 cm. long or less; calyx-lobes narrowly lanceolate, acuminate, longer than the tube, enclosing the spheroidal capsule; fruit consisting of 10–12 1-seeded carpels which are strongly reticulated on the inner surfaces near the base, tuberculate-roughened on the back, short-mucronate.

Type collected on the plains both east and west of Deming, New Mexico, June 14 and 13, 1906, *Wooton*. Common on the plains of southwestern New Mexico. As is indicated by the name, it resembles *Malvastrum coccineum* in habit and general appearance but from the nature of the fruit it is evidently a *Sphaeralcea*.

***Sphaeralcea ribifolia* sp. nov.**

Stems erect, slender, sparingly branched, with dense white stellate pubescence throughout, the whole plant having a grayish

or hoary appearance; leaf-blades broadly cordate-ovate in outline, simple or 3-lobed, obtuse, coarsely crenulate throughout, small, 15 mm. long and 16 mm. wide or less, covered with a rather dense, whitish, stellate pubescence on both sides, of medium thickness; petioles slender, 22 mm. long or less, usually longer than the blades; inflorescence axillary, or fascicled near the ends of the branches, rather open; flowers on pedicels 16 mm. long or less, each subtended by 2 or 3 filiform bracts, which are about one half as long as the calyx; corolla about 14 mm. long, salmon-pink; calyx-segments ovate-lanceolate, acute or acuminate, almost twice as long as the tube, the calyx about one half as long as the corolla and somewhat longer than the fruit; fruit about 7 mm. high and 6 mm. broad, composed of about 10 carpels which are not at all cuspidate, densely pubescent on their outer surfaces and conspicuously pitted on their inner ones, 1-seeded; the seeds very sparingly and minutely stellate-pubescent.

Nearest *S. laxa* but differing in its smaller, entire or less divided, longer-petioled, cordate or subcordate leaves, shorter pedicels, and less attenuate sepals. Type collected at the Martin and Sloan Ranch, Grant Co., New Mexico, Aug. 13, 1902, *Wooton*.

***Sphaeralcea pumila* sp. nov.**

Perennial from a slender ligneous root; stems slender, much branched, 15–25 cm. high, with scattered stellate pubescence throughout, the pubescence giving the stem a scaly and scurfy appearance; leaf-blades 2 cm. or less in length, thick, 3-parted to the base, the lobes often again divided and strongly pinnatifid; lobes rather obtuse, rather densely soft stellate-pubescent on both surfaces; petioles stout, 10 mm. long or less; inflorescence axillary, few-flowered; flowers on short, stout pedicels; corolla about 10–12 mm. long; calyx-lobes triangular-lanceolate, attenuate, twice as long as the tube, one half as long as the corolla and exceeding the fruit, densely pubescent; fruit about 5 mm. high and 7 mm. wide, composed of about 10 carpels whose outer surfaces are finely pubescent and the inner ones strongly pitted near the base; carpels shortly and inconspicuously mucronate; seeds 1 or 2 in each carpel, sparingly pubescent or almost glabrous.

Type collected at the Diamond A wells in the Silver City Draw, Grant Co., New Mexico, July 1, 1906, *Wooton*; the plant was collected also on dry hillsides on Bear Mt. near Silver City, Sept. 30, 1903, *Metcalf*. Probably nearest *S. simulans*, but distinguished by its smaller, thick, pinnatifid leaves.

***Sicyos ampelophyllus* sp. nov.**

Stems slender and weak, several feet long, sparingly and finely scabrate throughout or almost glabrous in parts; leaf-blades reniform-orbicular, 14 cm. long and 13 cm. wide or smaller, 3-lobed, the sinuses between the lobes narrow but rather deep, the lateral lobes sometimes again 2-lobed; the lobes sinuate-dentate, with mucronate teeth, obtuse, or the terminal one sometimes acutish and prominently mucronate; the basal sinus large and almost circular; the leaves scabrous on both surfaces; petioles as long as the blades or longer, scabrate or with a few scattered, soft, whitish hairs; pistillate flowers 5-10, 1.5-2 mm. broad, with ovate, obtuse corolla lobes, sessile at the end of a peduncle which is about 8 mm. long; staminate flowers in small, few-flowered racemes, on pedicels as long as the flower or longer, about 4 mm. in diameter, with rather obtuse petals; tendrils mostly 4-parted; fruit ovoid to ellipsoidal, about 5 mm. long and 4 mm. wide, the thin pericarp closely investing the smooth seed, which has 2 conspicuous scars at the base, the fruit conspicuously echinate with straw-colored, retrorsely barbed spines, which are about 3 mm. long.

Although not closely related to any other New Mexican species of *Sicyos* this plant is probably nearest *P. parviflorus* Willd. It is readily distinguished by the greater size and more robust habit of the plant and the larger leaves, which are different in shape. Type collected at Kingston, Sierra Co., New Mexico, in cultivated ground, Aug. 5, 1904, *Metcalf* 1195; altitude about 2030 m. Also collected on Sapello Creek, southeast of the Mogollon Mts., Aug. 22, 1900, and near Gila, July 12, 1900, *Wooton*.

***Phacelia similis* sp. nov.**

A diffuse annual with several ascending stems rising from a cluster of spreading basal leaves; stems 20-30 cm. high, sparingly leafy and terminating in compound helicoid cymes having 2-6 branches, the whole plant covered with a fine appressed pubescence with scattered spreading stiff hairs on the stems and midribs, somewhat viscid, especially on the inflorescence; leaves bipinnately parted, narrowly oblong in outline, 5-15 cm. long, 1-3 cm. wide, the segments oblong-elliptic, obtuse, 2-5 mm. long; the uppermost cauline leaves small, once pinnate with simple or toothed segments; flowers blue (?) (purplish in dried material), crowded, of moderate size for the genus, 6-8 mm. long and as broad; calyx of 5 equal spatulate sepals united for a short distance at the base, half as long as the corolla; corolla campanulate-funnelform, limb spreading, its segments broadly elliptic to rotund,

their margins unevenly toothed and slightly crispate ; stamens and pistil much exserted ; fruit globular, mature seeds not seen.

Type, Metcalfe's 1665, collected on the plains near Nutt Station, Sierra Co., New Mexico, May 12, 1905. This plant is most like *P. arizonica* A. Gray, which it closely resembles except in the following particulars : its flowers are almost twice as large, corolla- and calyx-lobes broader, corolla blue instead of white, and the leaves larger and more dissected. Mr. Metcalfe collected this plant and what Dr. Greene as well as the authors takes to be true *P. arizonica*, together on the same day, hence the two plants must have been easily separable in the field.

***Pentstemon puberulus* sp. nov.**

Perennial from a slender, creeping root ; stems few or single, erect or somewhat reclining at the base, slender, 4 dm. high or less, minutely puberulent throughout ; leaf-blades entire, lanceolate or the lowest ovate, acute or the uppermost acuminate, thin, glabrous, the uppermost sessile and clasping, the lower ones sessile but not clasping, the radical leaves on slender, winged petioles which are as long as the blade or longer, the blades decurrent upon the petioles ; inflorescence a short, interrupted thyrse, rather few-flowered, peduncles 2 at each of the upper nodes, 3-6 flowers on each peduncle, the flowers on pedicels 1 cm. long or less ; sepals linear-lanceolate, separate almost to their bases, long-acuminate, 12 mm. long or less, pubescent ; corolla 25 mm. long or less, rather light purple (when dry), straight, somewhat narrower and less inflated than in the related species, with a few scattered, silky hairs on the outside, rather conspicuously 2-cleft, the two lips about equal in length or the lower a little longer, the lower lips composed of 3 rather large, oblong, rounded lobes, and the upper lip of two smaller rounded ones, the lower lip somewhat bearded within ; sterile filament club-shaped, with a long and dense, bright yellow beard.

This plant is most closely related to *P. glaucus stenosepalus* A. Gray and *P. Whippleanus* A. Gray, but is distinguished by its thinner leaves, pubescent stem, rather less dense inflorescence, and its narrow and less deeply 2-lipped and lighter-colored corolla. From *P. Whippleanus* it differs also in the rather larger size of the plant and the bearded sterile filament. Type collected on shady slopes at the Lookout Mine, Sierra Co., New Mexico, May 2, 1905, *Metcalfe 1605*.

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